TSU. en Tecnologías de la Información en Entornos Virtuales y Negocios Digitales

Made By:

“Saul Alejandro Humaran Beltran “

Teacher:

Ray Brunett Parra Galaviz ““

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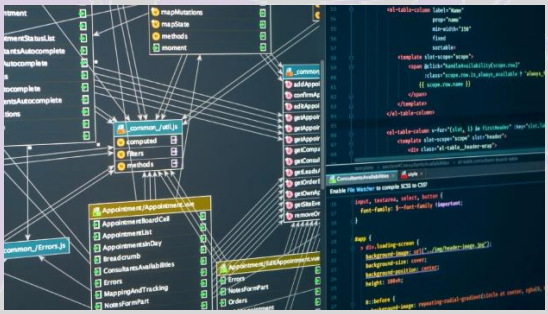
Back-end development process

¿What is?

Back-end development refers to the creation and maintenance of the part of the software that is not visible to end users, but is crucial to the operation of an application or system. This component is responsible for business logic, data manipulation, and communication with the database, among other functions.

¿ What is it for?



The back-end development process is essential for creating and operating computer applications and systems.

Functions and purposes:

Below we will introduce some of the key functions and purposes of backend development:

1. **Business Logic:** The back-end is responsible for implementing the business logic of an application. This includes handling and processing data according to specific business rules and requirements.

2. **Data Management:** Store and manage data efficiently. This involves the creation and manipulation of databases to store and retrieve information in a secure and structured manner.

3. **Security:** Implement security measures to protect data and system integrity. This includes user authentication, access control, and data encryption.

4. **Communication:** Provides interfaces and APIs for communication between the front-end and back-end, as well as for integration with other systems. APIs allow different parts of an application or even different applications to communicate with each other effectively.

5. **Scalability:** Design the system architecture so that it can scale to handle a greater volume of users or data. This is crucial to ensure that an application can grow and adapt to increasing demand.

6. **Maintenance and Updates:** Allows you to perform continuous maintenance and apply updates on the back-end without affecting the end user experience. Back-end developers can fix bugs, improve performance, and add new features without interrupting service.

7. **Performance Optimization**: Optimizes system performance, ensuring that operations are performed efficiently and quickly. This involves database query optimization, memory management, and other technical aspects.

8. **Error Handling:** Implements robust error handling to ensure that the system can handle unexpected situations appropriately and provide clear and useful error messages.

¿ What are the back-end development process?

1. **Requirements Analysis**: It begins with understanding the functional and non-functional requirements of the system. The characteristics that the backend must have to meet the project objectives are defined.

2. **Design:** In this stage, a software architecture is created that satisfies the requirements. The structure of the database is decided, the technologies are chosen and the APIs (Application Programming Interfaces) are designed that will allow communication between the frontend and the backend.

3. **Development:** Backend developers start writing the code based on the previous specifications and design. They implement the business logic, establish connections with the database, and create the necessary APIs.

4. **Testing**: Unit testing and integration testing are performed to ensure that each backend component works correctly individually and in conjunction with other components.

5. **Optimization and adjustment:** The aim is to improve the performance and efficiency of the backend, as well as to correct possible errors or problems identified during testing.

6. **Deployment:** Once the backend has passed testing and is optimized, it is deployed to the production environment. This involves launching the application so that end users can access it.

7. **Maintenance:** After deployment, the backend development team continues to monitor and maintain the system to ensure that it runs smoothly. Updates are made, bugs are fixed, and new features are implemented as needed.

¿What implying back-end development?

Back-end development often involves the use of various programming languages (such as Python, Java, Ruby, among others), frameworks, and specific technologies for manipulating databases and creating APIs. Additionally, back-end developers often work closely with front-end developers to ensure seamless integration between both parts of an application.

Conclusion:

Backend development is essential for creating web applications and complete computer systems. It provides the core functionality, security, data management, and communication capabilities necessary to make an application useful, secure, and efficient. Close collaboration between backend development and frontend development is essential to achieve a consistent and satisfying user experience.

Bibliography

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